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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/474,607	12/29/1999	FRED OLIVEIRA	E0295/7136	2467

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EXAMINER

POLLACK, MELVIN H

ART UNIT	PAPER NUMBER
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2141

DATE MAILED: 11/18/2003

15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/474,607

Applicant(s)

OLIVEIRA ET AL.

Examiner

Melvin H Pollack

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9,11-16 and 18-22 is/are rejected.
- 7) ☒ Claim(s) 3,10 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: *see attached office action*.

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: a potential typographical error “executed by a host computer in a multi-path system [[,]] (sic) including the host computer”. Appropriate correction is required. Specifically, should there be a comma between the two phrases?

Response to Arguments

2. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection. Applicant has added a significant number of limitations, thus changing the scope.

Claim Rejections - 35 USC § 103

3. Claims 1, 2, 6-9, 13-16, 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weston-Dawkes (6,487,177) in view of Eslambolchi et al. (6,363,051) and Grun et al. (6,081,848).

4. For claim 1, Weston-Dawkes teaches a method (see abstract) of processing an out of band control command (see below) executed by a host computer (i.e. Fig. 1, 112; client) in a multi-path system, including the host computer (Fig. 1, 112), a device (Fig. 1, 110, server) and multiple physical paths coupling the host computer to the device (Note how there are multiple paths, i.e 112 → 108 → 118 → 132 → 100 vs. 112 → 108 → 102 → 100), the out of band

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control command identifying a target address in the device (col. 2-3; col. 7, lines 1-15, IP addressing and the OSI model) and bypassing at least one layer in a normal read/write path in the system (col. 8, lines 48-61; where certain communications are moved in a lattice layer placed between L2 and L3 of the OSI model that represent the normal read/write path of the system), the out of band control command further identifying, from among the multiple physical paths (col. 9, lines 35-50), a target physical path for transmission of the out of band control command between the host computer and the device (col. 12, lines 4-15), the method comprising steps of:

- a. Selecting a selected physical path for transmitting out of band control command between the host computer and the device (Fig. 6-9), the selected physical path being selected from among the multiple physical paths based upon a selection criteria (col. 12, lines 5-50) that enables the selected physical path to be other than the target physical path identified by the out of band control command (col. 11, lines 35-45); and
- b. Transmitting the out of band control command between the host computer and the device over the selected physical path (Fig. 6, #606).

5. Weston-Dawkes does not expressly disclose out of band commands, although it does teach a connection lattice upon which a set of in-band and out of band connections may be developed. Eslambolchi teaches a method (see abstract) upon which an out of band control network is used (Fig. 1, #22) in order to perform particular command functions such as polling and monitoring (col. 1, lines 55-65). At the time the invention was made, one of ordinary skill in the art would have set up an Eslambolchi network in Weston-Dawkes in order to set up dedicated lines for certain features (col. 3, lines 1-5).

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6. Weston-Dawkes does not expressly disclose multiple direct paths between each unit.

Grun, which was used to teach many of the limitations of the original claim 1, provides further detail regarding the fact that a host may have multiple interconnections to the target (Fig. 1). At the time the invention was made, one of ordinary skill in the art would add Grun's multiple pathways to each node of Weston-Dawkes in order to bolster Weston-Dawkes' desire to provide a wider array of possible connections, as shown above.

7. For claim 2, Weston-Dawkes does not expressly disclose the nature of the device, and instead leaves the system generic. Grun teaches that the device is a data storage system (Fig. 1, 60-62, databases), wherein the out of band control command requests access to information stored on the data storage system (col. 3, lines 13-28), and wherein the command transmission includes a step of transmitting the information between the host computer and the data storage system over the selected physical path (col. 4, lines 6-20). At the time the invention was made, one of ordinary skill in the art would have combined the two inventions in order to provide a possible implementation for Weston-Dawkes, and to more efficiently transfer data (col. 1, lines 10-15).

8. For claim 6, Weston-Dawkes teaches that the path selection step includes a step of selecting the selected physical path based upon a selection algorithm that distributes, among the multiple physical paths a load of operations passing between the host computer and the device (col. 5, lines 1-20; teaches that paths are selected in view of load balancing).

9. For claim 7, Weston-Dawkes teaches that the path selection step includes a step of selecting the selected physical path based upon a state of previously assigned operations queued

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for transmission from the host computer to the device over the multiple physical paths (col. 12, lines 25-50).

10. Claims 8, 9, 13, and 14 are drawn to a software system that implements the method drawn in claims 1, 2, 6, and 7. It is well known in the art that a system implementation is functionally equivalent to the underlying method. Therefore, since claims 1, 2, 6, and 7 are rejected, claims 8, 9, 13 and 14 are also rejected for the reasons above. A teaching that shows the functional equivalence will be included upon request.

11. Claims 15, 16, 20, and 21 are drawn to a hardware system that implements the method drawn in claims 1, 2, 6, and 7. It is well known in the art that a system implementation is functionally equivalent to the underlying method. Therefore, since claims 1, 2, 6 and 7 are rejected, claims 15, 16, 20 and 21 are also rejected for the reasons above. A teaching that shows the functional equivalence will be included upon request.

12. Claim 22 is a system means claim with many of the limitations of claim 20. Since claim 20 is rejected, claim 22 is also rejected for the reasons above.

13. Claims 4, 5, 11, 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Weston-Dawkes, Eslambolchi, and Grun as applied to claims 1, 2, 6-9, 13-16, 20-22 above, and further in view of Kikinis (6,289,389).

14. For claim 4, Weston-Dawkes does not expressly disclose that the path selection step includes a step of selecting the target physical path as the selected physical path when the target physical path is operational, and selecting a different one of the multiple physical paths as the selected physical path when the target physical path is non-operational. It would be obvious to

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one of ordinary skill in the art that Weston-Dawkes can successfully select a particular path only if a path is operational. It has already been shown that Weston-Dawkes will select a different path for a wide variety of conditions such as to distribute loads more efficiently. Thus, Weston-Dawkes misses only the express teaching that said condition may be when a target physical path is non-operational. Kikinis teaches this limitation (col. 3, lines 10-13; col. 6, lines 19-32). At the time the invention was made, one of ordinary skill in the art would have added this limitation to make the system more robust, and to improve QoS by ensuring that all packets arrive.

15. For claim 5, Weston-Dawkes teaches that the path selection step includes a step of automatically selecting the different one of the multiple physical paths when the target physical path is non-operational, without intervention of a system administrator (col. 9, lines 20-47; Lattice Controllers, which work automatically without user intervention).

16. Claims 11 and 12 are drawn to a software system that implements the method drawn in claims 4 and 5. It is well known in the art that a system implementation is functionally equivalent to the underlying method. Therefore, since claims 4 and 5 are rejected, claims 11 and 12 are also rejected for the reasons above. A teaching that shows the functional equivalence will be included upon request.

17. Claims 18 and 19 are drawn to a hardware system that implements the method drawn in claims 4 and 5. It is well known in the art that a system implementation is functionally equivalent to the underlying method. Therefore, since claims 4 and 5 are rejected, claims 18 and 19 are also rejected for the reasons above. A teaching that shows the functional equivalence will be included upon request.

Allowable Subject Matter

18. Claims 3, 10 and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

19. The following is a statement of reasons for the indication of allowable subject matter: the examiner finds that the combination of limitations in claims 1-3 is a novel invention. Claim 3 adds the limitations of a multi-path system drawn in claims 1 and 2 that further includes a second computer that is coupled to the data storage system, wherein the data storage system includes a shared storage region shared by the host computer and the second computer, wherein the target address specifies the shared storage region, and wherein the transmission step includes a step of transmitting the information between the host computer and the shared storage region over the selected physical path. This level of detail is not shown in the analogous art in such a way as to teach or expressly disclose the combination of limitations. Further, any such combination would not be obvious. Therefore, claim 3 is allowable in independent form including all limitations of all parent claims.

20. Claims 10 and 17 have similar functionality, and are thus allowable for the same reasons.

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin H Pollack whose telephone number is (703) 305-4641.


The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rupal Dharia can be reached on (703) 305-4003. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800.

MHP

10 October 2003


RUPAL DHARIA
SUPERVISORY PATENT EXAMINER